1: Karsten--107 (1916-18) 1935 Jivaro
116, 322, 412 (1928-29)

"Similarly, woodwork of every kind is a man's occupation. Various objects of Indian ergology reveal great technical skill, which is all the more admirable as the implements that the Indians have at their disposal are very primitive. Formerly, when the Indians did not yet know such iron instruments as the axe and the knife which are nowadays common among all tribes, their resources for making various wooden objects were of course still more limited. Their principal implements at that time were sharp snail's shells, axes or clubs of stone of the kind which are still found in some Indian huts or occasionally encountered in the earth in old Indian settlements, and a kind of knife of split bamboo, called shingyana.

2: Stirling--107[3] (1930-1931) 1938 Jivaro
116, 241, 412, 482, 462

"The ground is not tilled in any fashioned. The only agricultural implements are a digging stick and a planting stick; frequently, the same implement serving both purposes. A typical digging stick is made of hard chonta palm, is about 4 feet in length, 1 1/2 inches in diameter, and is flattened at one end (pl. 23, a). The manioc is planted by taking small shoots from growing plants and placing the stems in shallow holes punched in the ground with the digging stick. The earth is then packed around the stem with the fingers and the plant requires no further care, the moist ground and the more or less continual rains doing the rest. The roots of the manioc are usually harvested when about a foot in length. If permitted to grow to a much larger size the tubers become coarse and woody. In harvesting manioc, which is one of the principal routine duties of the women, the tubers are excavated by means of the digging sticks, placed in the carrying baskets and borne by means of a head strap from the gardens to the house. This is no inconsiderable task, especially where the fields are at a distance over steep mountain trails from the jivaría (pl. 23, b)."

4: Up de Graff --203-204 (1897) 1923 Jivaro-1
116, 241, 412

"If you saw the one-handed stone axes which are the only tools these people have with which to fell the enormous trees, many of them three to five feet in diameter, to make their clearings (often five acres in extent), you would wonder how it were possible to accomplish this feat. It is a feat of patience rather than of skill. The wood is not cut, but reduced to pulp, six or eight men working round one tree at the same time.

The first step in making a chacra is to remove the undergrowth; the soft stems are cut with hard-wood machetes, what can be torn up by the roots is torn up, and the small saplings are snapped off by main force. Then the attention of the workers is turned to the larger trees. A ring is cut round the trunks of all the trees within a radius of, say, a hundred feet of some picked giant, enough to weaken them, and prepare them for the final strain which breaks them off. Finally the giant itself is attacked by a party with axes which works for days and weeks, until at last there comes a day when the great trunk has been eaten away sufficiently for it to crack and fall. But it does not fall alone, for it drags with it all the smaller trees in its vicinity which are bound to it and to one another by an unbreakable net[204]work of creepers among the upper branches. With a rending crash, a hole in the roof of the forest is made, and the sunlight pours in. At the same time the Indians pour out, leaping for their lives not only from the falling trees, but from the myriads of ants, bees, wasps, hornets, scorpions and centipedes which have been aroused. Worst of all is the iuturi (Inca), a dark red ant an inch and a half in length, which stings with its tail the moment it touches flesh, unlike any other poisonous

insect or snake in those woods; it does not wait to be disturbed but attacks of its own accord. I have even seen one make its way along the canoe rope, which was purposely passed under the water for a distance of two or three feet as a protection against crawling things. It must have been immersed for a full minute.

After leaving the trees to lie for several months during the dry season, the Antipas fire them, a process which eliminates all the smaller limbs and bush, leaving only the trunks, to deal with which they have no tools. I have examined the stumps of these fallen trees many a time; they resemble in every respect those of a clearing made by beavers."

4: Up de Graff --218 (1897) 1923 Jivaro
116, 412, 437, 177

"We had with us many cases of machetes and steel axes, which we bartered from time to time. It may be, then, that the next time I visit them, to get them to work the 'placer' deposits of gold which lie hidden somewhere in their territory I shall find that a great change has been wrought in their lives by the advent of these tools. For of all the blessings of civilization which these people needed, the axe and the machete to combat the prolific growth of weeds and bush in their clearings, and to make for themselves the multitudinous necessities of life--for almost every thing they use is cut from numi (wood--Jívaro) --stand out first and foremost."

20: Dyott--182-183 (no date) 1926 Jivaro
116, 412

"We are very apt to regard our modern-day inventions with awe and wonderment, thinking that it is only within the last century that we have made any real progress, but just imagine what a step forward was made by savage man when he discovered how to make bronze or iron implements. There are still tribes in the upper Amazon who use stone axes. I have even seen them in the hands of the Jivaros [183] and to watch a man pounding away at a big tree with such a crude weapon, takes one's thoughts back a good many thousand years. Kuashu had an old iron axe with which he cut up a few logs while we were hunting for strange insects. It was not a heavy blade, but he handled it with skill, and before the morning was out he had reduced half a dozen trunks to firewood."

28: Tessman--350 [3] (No date) 1930 Jivaro
116, 412, 287

The fire-fan (awáxin) is made of the feathers of the curassow bird; the quills are connected with two sticks (of the type shown on Plate 76, Fig. 13). Rivet (L'Anthropologie, XVIII, p. 589) reproduces a fire-fan which is extremely beautiful: a handle is plaited to the simple fan. There are no plaited fire-fans.

The broom (matéi) is made of the ribs of the pinnate leaves of Astrocaryum (aff.) vulgare (chambira L.). But there are also brooms made of the leafy stems of a grass with broad blades.

28: Tessman--351 [4] (No date) 1930 Jivaro
116, 412

They used to have stone axes (kanámp), but I have not seen any.

28: Tessman--353 [3] (No date) 1930 Jivaro
116, 252, 412

To grind the Indian corn they use a stone chopping knife (like 'M.O.G.", p. 166, Fig. 14) on a wooden board. They do not prepare any manihot flakes. They have tubular vessels with pestles.

32:Harner E-5 (1956-1957) 1962 SD9 Jivaro SD9



future generations of Jivaro. At the same moment that these arutam souls are "born," the second type of Jivaro soul comes into existence if the deceased person was murdered.

## THE MUISAK[9]

The second kind of soul, the muisak or avenging soul, is closely connected with the arutam soul. Only a person who has had an arutam soul is capable of forming a muisak. Furthermore, a muisak comes into existence only when a person who has seen an arutam is killed, whether by natural or supernatural means. At the time of death of such a person his avenging soul is created and leaves his corpse through its mouth.[10] If one simply dies of contagious disease or of old age (the latter believed to be a rare occurrence), no muisak is created.

The sole reason for being of a person's muisak is to avenge his death. This soul therefore attempts to kill the murderer, or if this is not possible (due to the murderer having an arutam soul), a son or wife of the murderer. The muisak is occasionally distracted from this objective, out of jealousy, to kill instead a new spouse of his widow. Because of this latter danger, young men who have not yet acquired much arutam power refill to avoid marrying widows.

Technically, the avenging soul is only called a muisak while it is in the corpse, subsequently in the shrunken head trophy (tsantsa), or its immediate vicinity. When the human head trophy is not taken and prepared, the muisak is able to travel as far as it likes from the corpse and to form into one of three types of iwanch or demons. These three demons are forms of the natural non-human world that can kill a man. One is a particularly dangerous poisonous snake (**mukan'i**). Another is the water boa constrictor or anaconda (**pau**) which can knock over the raft or canoe of the murderer and thereby cause him to drown in the rapid waters of one of the numerous fast-flowing rivers and streams of this hilly country. The third form is a large tree in the forest which falls on the victim and crushes him. These are the three traditional forms of death in Jivaro society which might be called "accidental" in other cultures. Since the introduction of the steel bush knife or machete and of firearms, a belief has been growing that a muisak can enter into these items to cause an "accidental" fatal wound. The Jivaro view slight self-inflicted wounds as true accidents, but grave or fatal self-inflicted wounds are always believed to be the results, respectively, of murder attempts or murders through supernatural mechanisms.

Before the avenging spirit or iwanch kills the murderer, it sometimes appears to him in the form of a man or a jaguar while he is sleeping. The sleeper tries to seize his firearm or lance (which he keeps on the bed beside him at night) to kill the apparition. Failure to do so will result in the demon eventually succeeding in killing the person. Sometimes this iwanch fails in its assassination attempt, only wounding or injuring the intended victim. In such cases, the victim becomes a permanent invalid.

When the demon has performed its act of vengeance, it then appears in

/331 cont./

extends from the chest to about the knees, is held by a band around the hips, but is measured so closely and fits so tightly that at every step the leg stands out at the side fold. /332/ These garments, if simple pieces of cloth may be called such, are made by the Ihanus from home-grown cotton and are all dyed the same dark-brown. The fabric is very firm and tight, the value of a piece is great, since it takes a woman a long time to make one with the primitive weaving apparatus. The very vain Indians make up for the lack of clothing by painting themselves. The face is decorated with diagonal lines, often with indentations, in red and black colors, chest and lower body with black designs, usually rectangles or simple lines. Occasionally one finds a band provided with continuous decorations and extending diagonally across the chest, the making of which, seemingly laborious, is done in the simplest manner. For it one uses a wooden cylinder two and a half inches long and half an inch thick, on which the design is deeply carved. The depressions are filled with a dye mixed with hard fat, and the cylinder is then rolled over the naked body, under firm pressure with the hand. The designs on the body, the execution of which requires a longer time, are put on with a plant juice which gradually becomes black; the color lasts for eight to ten days and resists even energetic attempts to wash it off. On the other hand, the red lines must be renewed constantly, and for this purpose every Indian carries with him a small box with dye and the proper brushes in a nicely plaited bag. In the same bag a comb elegantly put together out of long spines and a small piece of mirror are never lacking. Mirrors, along with iron implements, are the most valuable property. If one presents an Indian with a mirror, no matter how small, he will immediately break it in order to distribute the pieces among his wives or give them to his acquaintances. Men as well as women usually wear one or more little rods of cane in the pierced ear-lobes, and the women, moreover, wear under the lower lip, in an opening which looks like a needle hole, a toothpick-like peg (tucuti) projecting horizontally, for which sewing needles are preferably used.

14 Harner E-4.5 [1956-1969]1973 SD9 Jivaro SD9



173 The Jivaro have an oral tradition regarding the circum-
648 stances of the initiation of this peaceful contact:
177
459
[191] In the *old* days, all the Jivaro [*untsuri huara*] lived near the Río Paute. Then two Jivaro went up the Río Upano Valley and found many monkeys. Near the Río Tutanangoza, they encountered two Macabeos, who were kilts like the *huara*, but carried machetes. The Macabeos spoke a Jivaroan dialect different from theirs [Achuara?]. The Macabeos asked, "Do you have pigs?" The Jivaro men said, "Yes." So the Macabeos gave one of the Jivaro a piece of a machete blade and told him to bring pigs to Macas. The two *huara* returned downstream and told their people:

[192]
[411]
[231]

"We have encountered an animal, or perhaps it is a person, who wears a kilt. It gave us this machete."

[411]
[412] All the people tried out the machete blade fragment, happy with how well it worked compared to their stone axes. So they killed a few big pigs and gave the meat to some old women to carry to Macas. Two men went with the old women on the trail, but *did not enter* Macas with them. They were afraid of the whites, and thought that perhaps they would kill them. The men waited on the trail for the old women to return.

[291] When the women arrived in Macas with the meat, the whites gave them a shirt, four arm lengths of cloth to make a dress, and one piece of machete. One of the old women later said when she returned home, "They frightened me because they have such large houses and so many people."

After two days, the old women came back down the trail, surprising their people, who had decided that they had been killed. The old women told them that the Macabeos had many machetes and much cloth which they wanted to exchange for pigs.

[231] So, after a few days, four men left for Macas, carrying pigs. When they arrived, the whites sat them on stools and served them beer of sugar cane. The Macabeos gave the men two

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9



nuts above the reach of small children. Occasionally a large wooden signal drum may be found leaning against a wall post. There are no other important permanent furnishings.

The spaciousness of the house is matched by its neatness and cleanliness. The women sweep both inside and outside daily with a short broom made by lashing together branches of the *hapimiuk* plant. The sweepings are put on a banana leaf and carried away in an old basket to be dumped in the forest.

Smoldering fires are maintained at the foot of all beds both in the men's and women's ends to heat the sleepers' feet especially during the nights, which are often chilly, depending upon the altitude and the weather. Those at the women's beds are also the household cooking fires (see Plate 10). All household fires are made by laying three thick palm logs so that their ends meet like the spokes of a wheel. Normally, the log ends smolder slowly, but when a pot is set upon their juncture the logs soon burst into flame. With such an arrangement, fire lighting and kindling is rarely necessary. At night, additional light is provided by burning a small torch or two of copal.

### *Subsistence*

Each household has either a single large garden or several smaller ones. In the latter case, the house itself is usually located in the largest. Such gardens constitute almost the exclusive source of carbohydrates for the Jívaro, providing, in terms of calories, perhaps about 65 per cent of the diet. The cultivation of slowly maturing tuberous plants, especially sweet manioc (*Manihot utilissima*), which can be harvested over long periods of time, the absence of a distinct dry

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9



241 595 [574] [574] [554] the garden area is in a single clearing or several, its total size is heavily influenced by the number of wives a man has to cultivate the fields. A household with one wife tends to have a garden of about 50,600 square feet, while a second spouse increases the area to about 65,000, and a third to approximately 75,000. The areal increases are usually not simple multiples of the number of wives because the demand for food and beer to feed visitors tends to lag behind the increments in additional wives. These figures vary, of course, according to the consumption demands of the household, its number of visitors, and the industry of its inhabitants. A man who wishes to gain prestige may clear garden areas of larger size for each of his wives. In such a case, a household in which there are two wives may sometimes have a total garden of 100,000 square feet or more.

By measuring the yield within a restricted section of garden, the writer was able to arrive at a rough estimate of the quantity of a single harvest per 10,000 square feet of cultivated land. The results indicate that a "one wife" household with a garden of some 50,000 square feet may yield these approximate amounts of the major crops: 300 bushels of manioc; a total of 180 bushels of *papa china*, Araceae corms and sweet potato combined; 300 pounds of peanuts; and 90 stems of plantains and bananas.

241 595 462 [606] [412] [243] 241 476 The preparation of a garden begins with clearing the forest. The head of the household, sometimes assisted by a son or son-in-law, fells and trims the trees and clears the undergrowth with a steel axe and machete. His wife (wives) and daughters (if any) drag the slashings into piles, which are burned ten to fourteen days later, provided the weather is sufficiently dry. Women do not assist in making clearings for maize, since the slashings, in the case of that crop, are left unburned on the ground where they fall. Occasionally a man

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9



may invite his neighbors to help him make a clearing, but this practice is infrequent.

All the above crops, except maize, are planted together in the same cleared plot. Manioc plants, which are the largest in the garden, are spaced slightly less than two yards apart throughout, with the smaller plants between them. A line of plantain and banana trees separates the garden from the forest.

Crop planting is done with two aboriginal tools and the machete. The former are a sharp-pointed planting stick thrust into the soil to make seed holes, and a flat-bladed palm wood digging stick used as a lever to excavate holes for planting and digging up manioc and other tubers and corms. The machete also functions as an excavating tool in planting.

Times of planting and harvesting overlap and thereby assure a constant reaping of agricultural staples. Sweet potato, *papa china*, and Araceae species are planted at any time of the year. Sweet potato and *papa china* mature in about six months, while the Araceae tubers and the carrot-like *maya* require a year. Plantain and banana are planted during a full moon at any time of the year, and are harvested twelve to fifteen months later. "White" maize and peanuts are usually sown semiannually at the blooming of the *šutsí* flower, maize maturing in seven months, the other crop in five.

The most important crop, sweet manioc, is planted and harvested daily in the same act. As the women dig up the manioc tubers, they place several cuttings from the same plant's stalk in the old hole and partially cover them with earth. Manioc matures in ten to twelve months, but the actual harvesting can, if desired, be delayed as much as an additional year. This continual replanting of the manioc crop on a year-round basis, as the individual plants are dug up, is an important factor in the reliability of Jívaro crop production. Thus the Jívaro, in a real sense, "store" much of

34:Harner E-4. 5 (1956-1969)1973 SD9 Jivaro SD9



tamed, both for personal amusement and for trade to the western or frontier Jívaro to obtain steel machetes, axe-heads, firearms, and ammunition.

## *Technology and Crafts*

No single tool can be considered more ubiquitous in Jívaro life than the machete. The machete is the sole garden weeding implement as well as the only tool used for digging up root crops including the staple food, sweet manioc. It is used for woodworking, to dig clay for pottery, to prepare foods and to cut hair, and it is used to fell even the largest tree, although the less common steel axe is preferred for this task when it is available.

Machetes are of two types: the more plentiful *hapa mačit* ("deer machete"), of Ecuadorian manufacture, which was formerly obtained at Macas in exchange for one deer carcass; and the *kayens mačit* (Collins machete), of North American manufacture and preferred by the Jívaro because of its superior efficiency. The *hapa mačit* was introduced first, the Collins implement not reaching the Jívaro until about 1941. During the past few decades, large single-bitted steel axe heads have also been introduced in significant numbers by means of a system of Jívaro trading partners. Such axes are still far less plentiful than machetes, but in great demand because of their superiority over machetes in felling trees. Iron adze blades, which were apparently introduced about the same time as machetes, are possessed by only a very few individuals, but are in demand for finishing canoes and stools. All the types of steel tools are mainly obtained by trade from the western or frontier Jívaro of the Río Upano Valley.

As machetes become worn through years of continual use

34:Harner E-4. 5 (1956-1969)1973 SD9 Jivaro SD9



412 and lose their handles, they are relegated to purely culinary tasks. The steel blades are so highly valued, however, that they continue to be used even when worn down to mere stubs. Such stubs are broken into small triangular pieces and then used as knives for whittling blowgun darts and for performing other small cutting jobs. Wooden objects made with the machete are characteristically simple but well made, although a few carved embellishments resembling reptile heads may be seen as the handles of stools and mortar boards, and as the tips of house posts and the prows of dugout canoes.

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321 The machete is the basic tool used in manufacturing objects from bone and the shells of large land snails, the latter material being utilized primarily for women's dance belt rattles. Bone work is limited to making needles from monkey leg bones and carving gunpowder containers of cows' horns traded from the frontier Jívaro.

[534]
[413]
[415]
[399]

412 Non-ferrous cutting tools are nowadays only rarely employed. A sharp-edged strip of bamboo is used to cut the umbilicus of a new-born infant; and sometimes a hardwood weed-cutting "machete" is used in garden work when there is no steel one available. Otherwise steel tools dominate the processing of materials.

[844]
[244]

413 The tip of a machete or machete fragment serves as a boring tool, awls being unknown. Men sew the fringes of garments and make knotless netting bags with the aid of monkey bone needles. A few possess large steel needles for the same purposes. Women use bone or steel needles, or a fragment of a blowgun dart, to pin their dresses (*taračï*) over one shoulder (see Plate 4).

[294]
[415]
[291]
[294]

415 Wooden mortar boards and pestles are utilized in mashing the fruit of the chonta palm to prepare a special beer, to mash peanuts, and to crush a mixture of salt and hot pepper (see Plate 7). The same wooden board is used with a crude rocker-

[252]
[273]
[235]

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9

3. Man taking time out from land clearing to play a flute (Río Sepa, 1956–57).

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412
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/p. 90-C/

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9

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302
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273
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[312]
[482]

4. Woman carrying gourd water container and a basket of freshly peeled sweet manioc roots (Río Sepa, 1956–57).

[412]

5. Woman chopping up sweet manioc prior to boiling it as the first step in making beer (Río Cusuimi, 1956–57).

6. Stirring the boiled manioc with a wooden paddle. This is done in conjunction with mastication to prepare the mash for fermentation (Río Sepa, 1956–57).

[412] •

/p. 90-D/

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9



did" or "we do it that way because other people would laugh at us if we did it differently." The Jívaro seem proud of their ability to judge for themselves the usefulness of continuing or changing their traditional behavior on very pragmatic and personal grounds. All this does not mean to convey the idea that the Jívaro are natural anthropologists, but simply that their knowledge of the factors which influence the changes that they make as individuals should be respected sufficiently to be collected and included as useful ethnological data.

The main variables introduced into interior Jívaro culture during the period studied were Western-manufactured trade goods, especially machetes, axes, and guns. Some machetes were acquired by the frontier Jívaro near Macas about a hundred years ago,[2] but very few reached the interior Jívaro by intra-tribal trade until the turn of the century, and even these were so scarce and valued that their blades were each split into fragments to permit their utilization by several households. The more efficient steel blade fragments were at first used in the same manner as the aboriginal stone axe heads, each machete piece being mounted into a wooden handle. After the 1930's, however, machetes became sufficiently abundant so that the need to split the blades into small fragments was eliminated. They also largely replaced by then the traditional palm-wood "machetes" used in cutting down garden weeds. Despite their fair degree of availability at the present time, steel machetes are still highly valued and are used for many years, long after they have lost their handles and have become worn down to a fraction of their former size. Today they are considered to be utterly indispensable tools by the Jívaro, who also have been able to acquire some single-bitted steel axe-heads, although in much smaller numbers than the machetes.

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9

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412
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[177]



The introduction of machetes and steel axes has made woodworking and tree felling more efficient and rapid. The formerly tedious work of felling trees for garden clearings with the aboriginal stone axes has been described by Up de Graff for the Jivaroan "Antipas" (a neighborhood of the Aguaruna or Huambisa) among whom he resided in the late nineteenth century:

> If you saw the one-handed stone axes which are the only tools these people have with which to fell the enormous trees, many of them three to five feet in diameter, to make their clearings (often five acres in extent), you would wonder how it were possible to accomplish this feat. It is a feat of patience rather than of skill. The wood is not cut, but reduced to a pulp, six or eight men working round one tree at the same time.
>
> The first step in making a *chacra* [Spanish: garden] is to remove the undergrowth; the soft stems are cut with hardwood machetes, what can be torn up by the roots is torn up, and the small saplings are snapped off by main force. Then the attention of the workers is turned to the larger trees. A ring is cut round the trunks of all the trees within a radius of, say, a hundred feet of some picked giant, enough to weaken them, and prepare them for the final strain which breaks them off. Finally the giant itself is attacked by a party with axes which works *for days and weeks* [emphasis supplied], until at last there comes a day when the great trunk has been eaten away sufficiently for it to crack and fall. But it does not fall alone, for it drags with it all the smaller trees in its vicinity which are bound to it and to one another by an unbreakable network of creepers among the upper branches . . .
>
> After leaving the trees to lie for several months during the dry season, the Antipas fire them, a process which eliminates all the smaller limbs and bush, leaving only the trunks, to deal with which they have no tools. I have examined the stumps of these

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9



fallen trees many a time; they resemble in every respect those of a clearing made by beavers.[3]

Today such "giant" trees as referred to by Up de Graff are often felled in a matter of hours by a single man employing a steel axe, or somewhat longer if he only has a machete.

Despite the increased availability of steel axes and machetes for land clearing and weeding in recent decades, the size of forest areas cleared for gardens has not become larger. In fact, garden size and agricultural production are actually reported to have decreased by perhaps a third of what they were several decades ago.[4] Specifically, elderly informants estimate that the present garden size per nuclear family is one half to three quarters of what it was in 1925. They attribute the decline in agricultural production to the disinclination of the young men to clear land "because they do not like to work hard the way their fathers did." Instead, according to the informants, the younger men have their minds fixed on acquiring shotguns, steel tools, and other goods by becoming shamans or trading partners, and also spend more time than formerly in visiting each other's houses, drinking, and engaging in pre- and extra-marital sexual adventures.

There has also been a growing tendency for each household to have several small garden plots rather than the single large garden which was previously typical. This change is attributed to the fact that the steel axe and machete are so much more efficient than the preceding stone tools that a man can now successfully work alone in tree felling without needing to call on his neighbors for help. By avoiding asking them for help, he hopes to maintain better relations with them and thereby secure their services in some more important matter. Since a man usually works alone at intermittent times, the individ-

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9



ual garden plots tend to be smaller than those resulting from a large sustained effort by a group of neighbors.

Within the household, the basic aspects of life seem little changed except with regard to the amount of time men spend in land clearing and weaving. In recent decades, the time spent on these activities has been reduced, respectively, by the adoption of steel cutting tools and the acquisition of Western and Achuara cloth and articles of dress through trading partnerships. A man instead spends a larger percentage of his time simply relaxing in the house, going hunting to obtain skins for trade, and visiting other households.

The period of temporary matrilocal residence has become shortened in recent decades so that it now usually ends soon after the birth of the first child. Formerly, the couple commonly remained in the wife's parents' house until after the birth of the second or third child. The factors behind this change are not clear except that some informants said that in-laws were not getting along as well as they used to do in the old days. The occasional practice of avoiding temporary matrilocal residence and bride-service, by giving the bride's father a shotgun, is reportedly a recent development.

The introduction of firearms, starting slowly at about the turn of the century, constituted a major technological change in Jívaro culture comparable in importance to the adoption of steel cutting tools. At that time, during the height of the Amazon rubber boom, a few Winchester .44 caliber carbines were acquired by the interior Jívaro from the Achuara, the firearms being captured during head-taking raids. The acquisition of great numbers of firearms by the interior Jívaro, however, is a development of only the last three decades. The new firearms, which are muzzle-loading shotguns of Spanish manufacture, and possessed by virtually every adult male, have been acquired along with gunpowder and shot by trade

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9



from the frontier Jívaro. These firearms are still being obtained in ever greater numbers.

The development of long-distance chains of trading partners between the interior Jívaro and adjacent tribes is an especially noteworthy change, mainly occurring since the end of the Amazon rubber boom, about 1914–15. The impetus for this development was provided by the fact that the end of the rubber boom found the Achuara tribe, which had been much more involved in the rubber trade than the Jívaro, suddenly cut off from their supply of firearms and ammunition. At the same time, trade between the frontier Jívaro and the whites at Macas and Méndez was beginning to develop significantly, and the Jívaro also wanted Achuara products, particularly blowguns and dart poison. The essential result was that both the Jívaro and the Achuara found it profitable to develop mutual trade. To the former inventory of products traded within the Jívaro tribe, such as salt and machete blade fragments, were added new goods coming from the frontier Jívaro on the west, and the Achuara in the east. The new goods primarily have been firearms, gunpowder, increased quantities of steel cutting tools from the frontier Jívaro, and featherwork, blowguns, and dart poison from the Achuara.

In connection with trading partnerships, a minor ritual has been learned from the Achuara tribe. This is the ceremony in which two men embrace each other, kneeling on a cloth, to formalize a partnership relationship. Previously any contractual ritual was unknown.

The now universal demand among the interior Jívaro for firearms and gunpowder has made the men of every neighborhood extremely dependent on those persons who have trading partners in neighborhoods nearer the regions of white settlement in the west. The intensification of the trading

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more in defending houses against attack. Sugar cane was the chief antidote against the curare dart poison, and men going on a killing expedition would carry some to suck on if hit by a dart.

Despite the efficiency of the steel tools and their increased supply, the quantity and quality of the artifacts produced through their use does not seem to have particularly changed. In other aspects of work, the machete has replaced the aboriginal bamboo knife for skinning animals and cutting meat, and has almost entirely taken the place of the palm-wood "machete" in clearing gardens of weeds. Steel needles obtained from the West have partially replaced bone ones for sewing and boring. The traditional bone needles, because of their large size, are still preferred for some tasks, especially the making of netted bags. A new minor craft is the fashioning of powder horns from unworked cow horns obtained from trading partners in the west, who secure them from the whites.

The preparation of animal skins for trade has increased considerably in order to acquire steel tools, shotguns, and gunpowder from the frontier Jívaro trading partners. Cordage manufacture remains unchanged, but the local production of knotted and knotless netting bags is a new development, learned from the Achuara tribe as a result of the increased peaceful contacts by trading partners.

Western-manufactured clothing, along with trade cloth and glass beads, has been adopted gradually by men and women as a result of the development of the trading partnership system. The increased trade has also resulted in the acquisition of Achuara-woven cotton kilts. The acquisition of both Western and Achuara items of dress has greatly contributed to a decline in the home weaving of garments by Jívaro. Bark clothing, viewed as a sign of poverty, has be-